SIEMENS

ACVATIX™

# Rotary actuator for ball valves in combination with the Intelligent Valve Controller

## GLA161.1E/HR

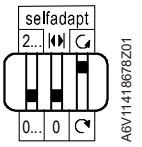
**Electromotive rotary actuator for modulating control of control ball valves in combination with the Intelligent Valve Controller.**
**Used in heating, ventilation, and air conditioning plants.**

- For 2-port and 3-port control ball valves, externally threaded (VAG61.., VBG61..), DN 15...50
- Nominal torque 10 Nm
- Operating voltage AC 24 V ~ / DC 24 V ⎓
- Prewired with 0.9 m connecting cable

## Features

- Brushless, robust DC motors for reliable operation regardless of load.
- The valve actuators do not require an end position switch, are overload proof, and remain in place upon reaching the end stop.
- The gears are maintenance free and low noise.
- Suitable for operating with the Intelligent Valve Controller.

## Functions

| | |
|---|---|
| Control type | Modulating control (0…10 V) |
| Rotary direction | Clockwise/counter-clockwise based on the DIL switch setting.<br>DIL switch setting 'counter-clockwise':<br>**CCW**<br>  <br><br>Flow = 0% at Y = 0 V<br>Flow = 100% at Y = 10 V |
| | The actuator remains in the deployed position:<br>…if the positioning signal is maintained at a constant value.<br>…in the event of a power loss. |
| Position indication, mechanical | Rotary angle position indication via position indicator/manual lever. |
| Position indication, electrical | Position indicator: Output voltage U = DC 0…10 V is generated proportional to rotary angle.<br>The direction of action (inverted or non-inverted) for output voltage U is based on the DIL switch position. |
| The rotary angle range is self-adapting | If self-adaptation is enabled, the actuator automatically determines the mechanical end stops of the rotary angle. |
| Manual adjustment | The actuator can be manually adjusted by pressing the gear train disengagement button. |
| Rotary angle limitation | A set screw can limit the rotary angle to between 0° and 90°. |

**⚠ CAUTION**

**Adjusting DIL switch 1 prevents the complete closure of the valve.**

The remaining flow can result in a loss of comfort or property damage caused by the overheating of the piping system.

- DIL switch 1 must remain at factory setting '0…10 V'.

**⚠ CAUTION**

**Adjusting DIL switch 3 may result in the complete opening of the control valve.**

Excessive flows may result in property damage due to overheating of the piping system, damage to the flow sensor on the Intelligent Valve, or damage to the plant.

- DIL switch 3 must remain at factory setting 'Counter-clockwise'.

## Technical design

### Housing

The housing is made of fiberglass reinforced plastic:

- Flame retardant
- Non-brominated
- Non-chlorinated.

## Type summary

| Type | Stock number | Open-loop control | Operating voltage | Positioning signal input Y | Position indicator U = DC 0...10 V ⎓ | Self-adapting rotary angle range |
|---|---|---|---|---|---|---|
| GLA161.9E/HR | S55499-D444 | Modulating | AC 24 V ~ / DC 24 V ⎓ | DC 0…10 V ⎓ | yes | yes |

## Accessories/spare parts

Individual spare parts are not available. Elements of the ASK77.3 mounting kit (accessory) can, however, be used as spare parts.

| Order text | Components |
|---|---|
| ASK77.3 Accessory Kit BV for GLA161.03/HR | Mounting bracket (base plate)<br>Shaft with sleeve and spring<br>Manual lever with safety clip |

## Equipment combinations

### Control ball valves with externally threaded connection [1)]

| Type | | | $k_{vs}$ [$m^3/h$] | DN | $\Delta p_{max}$ | $\Delta p_a$ |
|---|---|---|---|---|---|---|
| 2-port | 3-port | G..B | | | | |
| VAG61.15.. | | G 1 B | 1…6.3 | 15 | 350 | 1400 |
| | VBG61.15.. | | | | | - |
| VAG61.20.. | | G 1¼ B | 4…10 | 20 | | 1400 |
| | VBG61.20.. | | | | | - |
| VAG61.25.. | | G 1½ B | 6.3…16 | 25 | | 1400 |
| | VBG61.25.. | | | | | - |
| VAG61.32.. | | G 2 B | 10…25 | 32 | | 1000 |
| | VBG61.32.. | | | | | - |
| VAG61.40.. | | G 2¼ B | 16…40 | 40 | | 800 |
| | VBG61.40.. | | | | | - |
| VAG61.50.. | | G 2¾ B | 25…63 | 50 | | 600 |
| | VBG61.50.. | | | | | - |

1) Data sheet N4212

## Product documentation

| Topic | Title | Document ID |
|---|---|---|
| Data sheet | Rotary actuators for ball valves in combination with the Intelligent Valve Controller | A6V11418678 |
| Technical principles | Non-spring return rotary actuators GL..E | A6V10636196 |
| Mounting instructions | GLA161.9E/HR | A6V11418688 |
| Mounting instructions | VAG61.. / VBG61.. | M4212 |

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

http://siemens.com/bt/download

## Notes

### Safety

**⚠ CAUTION**

**National safety regulations**

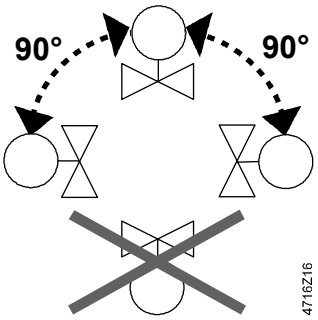
Failure to comply with national safety regulations may result in personal injury and property damage.

- Observe national provisions and comply with the appropriate safety regulations.

### Mounting

Both ball valve and rotary actuator can be easily and directly assembled at the mounting location. No special tools or adjustments required.

**Alignment**



## Installation

**⚠ WARNING**

**No internal line protection for supply lines to external consumers**

Risk of fire and injury due to short-circuits!

- Adapt the wire cross sections as per local regulations to the rated value of the installed fuse.

## Commissioning

When commissioning the system, check both wiring and rotary actuator functions.

**Manual adjustment**

Open the side gear disengagement slider to manually adjust the rotary actuators to any position between 0° and 90°.

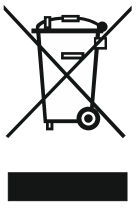
The controller's control signal has a higher priority for determining the position after the slider is released

Manual adjustment: Only in a de-energized state!

## Maintenance

The GLA161.9E/HR actuator is maintenance-free.

## Disposal



The device is considered an electronic device for disposal in accordance with the European Guidelines and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

## Warranty service

Technical data on specific applications are valid only together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

## Technical data

| Power | | | |
|---|---|---|---|
| Operating voltage (SELV/PELV) | | | AC 24 V ~ ± 20 % (19.2…28.8 V ~)<br>DC 24 V ⎓ ± 20 % (19.2…28.8 V ⎓) |
| Frequency | | | 50/60 Hz |
| Power consumption: during operation | | | 2.5 VA / 1.5 W |
| Power consumption: holding | | | 0.7 W |

| Operating data | | | |
|---|---|---|---|
| Nominal torque | | | 10 Nm |
| | Maximum torque (when blocked) | | 16 Nm |
| | Minimum holding torque | | 10 Nm |
| Nominal rotary angle (with position indication) | | | 90° |
| | Maximum rotational angle (mechanically limited) | | 95° ± 2° |
| Runtime at nominal rotational angle 90° | | | 90 s |
| Sound pressure level: actuator | | | 28 dB(A) |

| Inputs | | | |
|---|---|---|---|
| Positioning signal | | | |
| | Input voltage | (Wires 8-2/Y-G0) | DC 0…10 V ⎓ |
| | Power consumption | | 0.1 mA |
| | Input resistance | | >100 kΩ |
| Max. permissible input voltage | | | DC 35 V ⎓ limited internally to DC 10 V ⎓ |
| | Protected against incorrect wiring | | Max. AC 24 V ~ |
| Resolution | | | <60 mV |
| Hysteresis | | | 180 mV |

| Outputs | | | |
|---|---|---|---|
| Position indicator | | | |
| | Output signal | (Wires 9-2/U-G0) | DC 0...10 V ⎓ |
| | Output voltage U | | DC ± 1 mA |
| | Max. output current | | Max. AC 24 V ~ / DC 24 V ⎓ |
| | Protected against incorrect wiring | | |

| Connection cable | |
|---|---|
| Cable length | 0.9 m |
| Cross section | 0.75 $mm^2$ |
| Permissible length for signal wires | 10 m |

| Ambient conditions and protection classification | | |
|---|---|---|
| Device IP class per EN 60730 | | |
| | AC 24 V ~ / DC 24 V ⎓ | III |
| Degree of protection of housing to EN 60529 | | IP54 |
| Operation | | Per IEC 60721-3-3 |
| | Climatic conditions | Class 2K3 |
| | Mounting location | Interior, weather protected |
| | Temperature (extended) | -10...55 °C |
| | Humidity (non-condensing) | <95 % r.h. |
| Transport | | Per IEC 60721-3-2 |
| | Climatic conditions | Class 3K5 / class 2K3 |
| | Temperature (extended) | -32...70 °C |
| | Humidity (non-condensing) | <95 % r.h. |
| Storage | | Per IEC 60721-3-1 |
| | Climatic conditions | Class 1K3 |
| | Temperature (extended) | -32…50 °C |
| | Humidity (non-condensing) | <95 % r.h. |
| Mechanical ambient conditions | | Class 2M2 |

| Standards, directives and approvals | |
|---|---|
| Product standards | EN 60730<br>Part 2-14: Particular requirements for electric actuators |
| Electromagnetic compatibility (field of use) | For residential, commercial, and industrial environments |
| EU conformity (CE) | A5W00026945 [1)] |
| RCM conformity | A5W00026946 [1)] |
| EAC compliance | Eurasien compliance |
| UL<br>Federal Communications Commission | UL as per UL 60730 http://database.ul.com<br>cUL as per CSA-C22.2 No. 24-93 |

| Environmental compatibility |
|---|
| The product environmental declaration A5W00026068 [1)] contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal). |

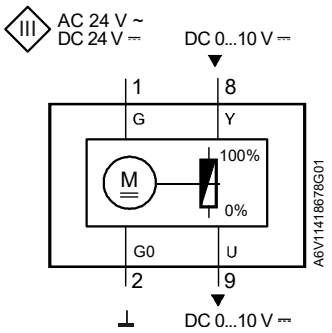
| Dimensions |
|---|
| See Dimensions [→ 9] |

| Weight | |
|---|---|
| Excl. packaging | 0.69 kg |

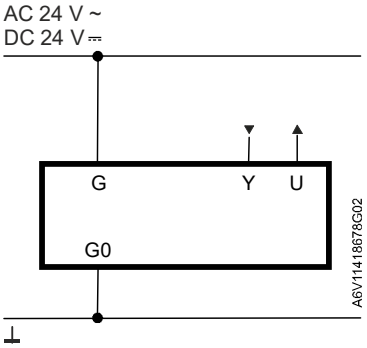
[1)] Documents can be downloaded at http://siemens.com/bt/download

## Connection diagrams

### Connection diagram



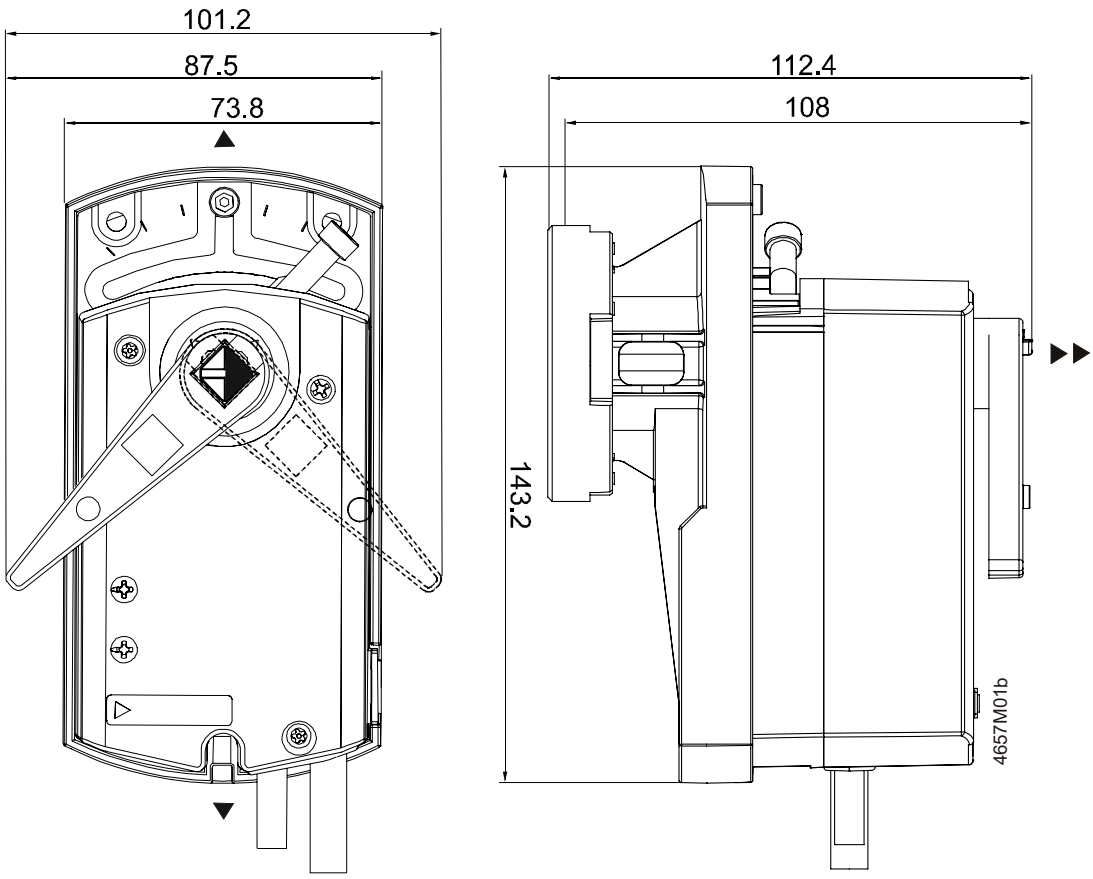

### Connection diagram




### Cable designations

| Connection | Code | No. | Color | Abbreviation | Meaning |
|---|---|---|---|---|---|
| Actuators<br>AC 24 V ~<br>DC 24 V ⎓ | G | 1 | Red | RD | System potential AC 24 V ~ / DC 24 V ⎓ |
| | G0 | 2 | Black | BK | System zero |
| | Y | 8 | Gray | GY | Signal input |
| | U | 9 | Pink | PK | Signal output |

## Dimensions




Dimensions in mm

▶ = > 100 mm
▶▶ = > 200 mm

Min. clearance from ceiling or wall for mounting, connection, operation, maintenance, etc.

## Revision numbers

| Type | Valid from rev. no. |
|---|---|
| GLA161.9E/HR | ..A |

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